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EXAMINER	
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ART UNIT	PAPER NUMBER
2857	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/988,416	MILLER ET AL.	
	Examiner	Art Unit	
	Jeffrey R. West	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *03/01/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 30, 2006, has been entered.

Claim Objections

3. Claims 1-9, 11-16, 18, 19, 21-27, 35-37, 39, 40, and 42 are objected to because of the following informalities:

In claim 1, line 7, to avoid problems of antecedent basis, "said processing elements" should be ---said one or more processing elements---.

In claim 1, line 8, to avoid problems of antecedent basis, "the received input signals" should be ---the received one or more input signals---.

In claim 1, line 9, to avoid problems of antecedent basis, "associated processing element" should be ---associated one or more processing elements---.

In claim 1, lines 10-11, to avoid problems of antecedent basis, "said processing element" should be ---said one or more processing elements---.

In claim 2, line 1, claim 3, line 2, claim 4, lines 1-2, claim 4, line 3, claim 5, line 1, claim 6, lines 1-2, and claim 6, line 3, to avoid problems of antecedent basis, "said plurality of" should be ---said one or more---.

In claim 7, line 7, to avoid problems of antecedent basis, "said processing elements" should be ---said one or more processing elements---.

In claim 7, line 8, to avoid problems of antecedent basis, "received input signals" should be ---received one or more input signals---.

In claim 7, lines 8-9, to avoid problems of antecedent basis, "associated processing element" should be ---associated one or more processing elements---.

In claim 7, lines 10-11, to avoid problems of antecedent basis, "said processing element" should be ---said one or more processing elements---.

In claim 7, line 18, to avoid problems of antecedent basis, "said plurality of processing elements" should be ---said one or more processing elements----.

In claim 8, line 1, claim 9, line 1, claim 11, line 1, claim 12, lines 1-2, claim 13, line 1, to avoid problems of antecedent basis, "said plurality of" should be ---said one or more---.

In claim 14, line 5, to avoid problems of antecedent basis, "said processing elements" should be ---said one or more processing elements---.

In claim 14, line 6, to avoid problems of antecedent basis, "the received input signals" should be ---the received one or more input signals---.

In claim 14, line 7, to avoid problems of antecedent basis, "the associated processing element" should be ---the associated one or more processing elements---

In claim 14, lines 8-9, to avoid problems of antecedent basis, "said processing element" should be ---said one or more processing elements---.

In claim 14, line 16, to avoid problems of antecedent basis, "said plurality of processing elements" should be ---said one or more processing elements---.

In claim 14, line 17, to avoid problems of antecedent basis, "the plurality of processing elements" should be ---the one or more processing elements---.

In claim 14, lines 17-18, to avoid problems of antecedent basis, "said input signals" should be ---said one or more input signals---.

In claim 15, lines 1-2, claim 15, line 2, claim 16, line 1, claim 16, line 2, claim 18, lines 1-2, claim 19, lines 1-2, claim 21, lines 1-2, and claim 21, line 3, to avoid problems of antecedent basis, "said plurality of" should be ---said one or more---.

In claim 21, line 2, to avoid problems of antecedent basis, "the definition" should be ---a definition---.

Claims 22-27, 35-37, 39, 40, and 42, are also objected to for reasons similar to those provided above with respect to lack of proper antecedent basis for recitations of "said plurality of processing elements", "the received input signals", and "the definition".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 is considered to be vague and indefinite because it attempts to further limit parent claim 16 "wherein the activation of said first and second processing elements are synchronized". Parent claim 16, however, does not contain a mention of any "activation" and therefore it is unclear to one having ordinary skill in the art as to what "the activation" refers.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 14, 22, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,301,336 to Kodosky.

With respect to claim 1, Kodosky discloses a method for configuring and performing processing in an instrument comprising the steps of receiving one or more input signals by the instrument (column 9, lines 44-47, column 10, lines 54-59 and column 15, lines 4-20), receiving one or more input parameters by the instrument (column 32, lines 47-50), defining a set of instructions input by a user to be associated with one or more processing elements of the instrument, based upon said one or more input parameters (column 9, lines 58-64 and column 32, line 48 to column 33, line 16), to enable said processing elements to carry out said instructions and perform processing on the received input signals within the instrument upon application of the associated processing element (column 33, line 66 to column 34, line 13), assigning a graphical representative for each said processing element (column 32, lines 5-7 and column 33, lines 19-25), coupling one or more of the received input signals to one or more processing element graphical representatives (column 31, lines 13-18 and column 34, lines 2-13), and connecting respective ones of said processing element graphical representatives to define and graphically depict

a processing web for performing corresponding processing on said one or more received input signals within said instrument (column 34, lines 1-16 and Figure 74).

With respect to claim 14, Kodosky discloses a method for configuring and performing processing in an instrument, comprising the steps of receiving one or more input signals by the instrument (column 9, lines 44-47, column 10, lines 54-59 and column 15, lines 4-20), defining a set of instructions input by a user to be associated with one or more processing elements of the instrument, to enable said processing elements to carry out said instructions and perform processing on the received input signals within the instrument upon application of the associated processing element (column 58-64 and column 32, line 48 to column 33, line 16), assigning a graphical representative for each said processing element (column 32, lines 5-7 and column 33, lines 19-25), coupling one or more of the received input signals to one or more processing element graphical representatives (column 31, lines 13-18, column 34, lines 2-13), connecting respective ones of said processing element graphical representatives in a predetermined relationship to depict a processing web and allow for a desired processing on said one or more received input signals within said instrument, and controlling said plurality of processing elements to manage a proper flow of data through the plurality of processing elements whereby said instrument processes said input signals (column 34, lines 1-16 and Figure 74).

With respect to claim 22, Kodosky discloses a processing web defining processing on input signals in an instrument, comprising at least one input for

receiving one or more input signals by the instrument (column 9, lines 44-47, column 10, lines 54-59 and column 15, lines 4-20), a set of instructions input by a user associated with one or more processing elements of the instrument, said instructions based upon one or more received input parameters (column 58-64 and column 32, line 48 to column 33, line 16), each of said plurality of processing elements performing a discrete processing function within the instrument on the received input signals (column 58-64 and column 32, line 48 to column 33, line 16), each of said plurality of processing elements having a graphical representative assigned thereto and said processing elements operating to carry out the user-input instructions upon application of the associated instruction (column 32, lines 5-7 and column 33, lines 19-25), a coupling from said at least one input to one or more processing element graphical representatives (column 31, lines 13-18, column 34, lines 2-13), and a plurality of connections between respective ones of said processing elements (column 34, lines 1-16 and Figure 74) being generated in accordance with manipulation of the processing element graphical representatives corresponding to said plurality of processing elements and an indication being generated of connections therebetween to define a flow of information therebetween (column 23, lines 61-65 and column 31, lines 19-56), such that processing on said one or more received input signals within said instrument performed in accordance with the connected processing elements (column 34, lines 1-16 and Figure 74).

With respect to claim 35, Kodosky discloses a processing web defining processing in an instrument, comprising at least one input for receiving one or more

input signals by the instrument (column 9, lines 44-47, column 10, lines 54-59 and column 15, lines 4-20), a set of user-generated instructions associated with one or more processing elements of the instrument (column 58-64 and column 32, line 48 to column 33, line 16), each of said plurality of processing elements performing a processing function within the instrument on the received input signals upon application of the associated instruction (column 58-64 and column 32, line 48 to column 33, line 16), and each having a graphical representative assigned thereto (column 32, lines 5-7 and column 33, lines 19-25), and a plurality of connections defined by a user in accordance with said instructions for connecting respective ones of said processing elements in a predetermined relationship being generated in accordance with manipulation of a plurality of the processing element graphical representatives and an indication being generated of connections therebetween (column 23, lines 61-65 and column 31, lines 19-56) to allow for a desired processing within said instrument on said one or more received input signals in accordance with the connected processing elements, wherein said plurality of processing elements are controlled to manage the proper flow of data through the plurality of processing elements (column 34, lines 1-16 and Figure 74).

Although the invention of Kodosky does not explicitly state that the processing be performed in a digital oscilloscope instrument, rather than a function generator instrument, such a limitation is considered to be an intended use. It has been held that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to

patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In this case, since the structure of Kodosky is capable of performing the processing in any of a wide variety of devices, such as a digital oscilloscope, it meets the claim.

Further, it would have been obvious to one having ordinary skill in the art to explicitly state that the processing is carried out in a digital oscilloscope because the invention of Kodosky does consider implementation in a plurality of devices including a function generator and/or oscillation measuring device (column 2, lines 22-34), and the modification would have improved the state of the art by providing increased utility of the device of Kodosky in a wider variety of environments.

8. Claims 1, 14, 22, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,920,479 to Sojoodi et al. in view of U.S. Patent No. 5,301,336 to Kodosky.

With respect to claim 1, Sojoodi discloses a method for configuring and performing processing in a digital oscilloscope (column 1, lines 60-67) comprising the steps of receiving one or more input signals by the digital oscilloscope (column 3, lines 10-21 and column 13, lines 51-67), receiving one or more input parameters by the digital oscilloscope (column 19, lines 48-59), selecting a set of instructions by a user (column 15, lines 11-15, column 17, lines 30-54, and column 25, lines 46-56) to be associated with one or more processing elements of the digital oscilloscope, based upon said one or more input parameters, to enable said processing elements

to carry out said instructions and perform processing on the received input signals within the digital oscilloscope upon application of the associated processing element (column 10, lines 59-64), assigning a graphical representative for each said processing element (column 13, lines 51-67), coupling one or more of the received input signals to one or more processing element graphical representatives (column 13, lines 51-67), and connecting respective ones of said processing element graphical representatives to define and graphically depict a processing web for performing corresponding processing on said one or more received input signals within said digital oscilloscope (column 17, line 55 to column 18, line 32).

With respect to claim 14, Sojoodi discloses a method for configuring and performing processing in a digital oscilloscope (column 1, lines 60-67), comprising the steps of receiving one or more input signals by the digital oscilloscope (column 3, lines 10-21 and column 13, lines 51-67), selecting a set of instructions by a user (column 15, lines 11-15, column 17, lines 30-54, and column 25, lines 46-56) to be associated with one or more processing elements of the digital oscilloscope, to enable said processing elements to carry out said instructions and perform processing on the received input signals within the digital oscilloscope upon application of the associated processing element (column 10, lines 59-64), assigning a graphical representative for each said processing element (column 13, lines 51-67), coupling one or more of the received input signals to one or more processing element graphical representatives (column 13, lines 51-67), connecting respective ones of said processing element graphical representatives in a predetermined

relationship to depict a processing web and allow for a desired processing on said one or more received input signals within said digital oscilloscope, and controlling said plurality of processing elements to manage a proper flow of data through the plurality of processing elements whereby said digital oscilloscope processes said input signals (column 17, line 55 to column 18, line 32).

With respect to claim 22, Sojoodi discloses a processing web defining processing on input signals in a digital oscilloscope (column 1, lines 60-67), comprising at least one input for receiving one or more input signals by the digital oscilloscope (column 3, lines 10-21 and column 13, lines 51-67), a set of instructions selected by a user (column 15, lines 11-15, column 17, lines 30-54, and column 25, lines 46-56) associated with one or more processing elements of the digital oscilloscope, said instructions based upon one or more received input parameters, each of said plurality of processing elements performing a discrete processing function within the digital oscilloscope on the received input signals (column 10, lines 59-64), each of said plurality of processing elements having a graphical representative assigned thereto and said processing elements operating to carry out the user-input instructions upon application of the associated instruction (column 13, lines 51-67), a coupling from said at least one input to one or more processing element graphical representatives (column 13, lines 51-67), and a plurality of connections between respective ones of said processing elements being generated in accordance with manipulation of the processing element graphical representatives corresponding to said plurality of processing elements and an indication being generated of

connections therebetween to define a flow of information therebetween (column 16, line 64 to column 17, line 16 and column 17, line 55 to column 18, line 2), such that processing on said one or more received input signals within said digital oscilloscope is performed in accordance with the connected processing elements (column 17, line 55 to column 18, line 32).

With respect to claim 35, Sojoodi discloses a processing web defining processing in a digital oscilloscope (column 1, lines 60-67), comprising at least one input for receiving one or more input signals by the digital oscilloscope (column 3, lines 10-21 and column 13, lines 51-67), a set of user-selected instructions associated with one or more processing elements of the digital oscilloscope (column 15, lines 11-15, column 17, lines 30-54, and column 25, lines 46-56), each of said plurality of processing elements performing a processing function within the digital oscilloscope on the received input signals upon application of the associated instruction (column 10, lines 59-64), and each having a graphical representative assigned thereto (column 13, lines 51-67), and a plurality of connections defined by a user in accordance with said instructions for connecting respective ones of said processing elements in a predetermined relationship being generated in accordance with manipulation of a plurality of the processing element graphical representatives and an indication being generated of connections therebetween (column 16, line 64 to column 17, line 16 and column 17, line 55 to column 18, line 2) to allow for a desired processing within said digital oscilloscope on said one or more received input signals in accordance with the connected processing elements, wherein said plurality of

processing elements are controlled to manage the proper flow of data through the plurality of processing elements (column 17, line 55 to column 18, line 32).

As noted above, the invention of Sojoodi teaches many of the features of the claimed invention, and while the invention of Sojoodi does teach a plurality of processing devices each with specifically instructions to be carried out, wherein the user selects the processing devices as desired as well as applies desired attributes, Sojoodi provides a list of instructions that can be applied to the respective processing devices rather than allowing the user to input the instructions that each processing device carries out.

Kodosky discloses a processing web defining processing on input signals in an instrument, comprising at least one input for receiving one or more input signals by the instrument (column 9, lines 44-47, column 10, lines 54-59 and column 15, lines 4-20), a set of instructions input by a user associated with one or more processing elements of the instrument, said instructions based upon one or more received input parameters (column 58-64 and column 32, line 48 to column 33, line 16), each of said plurality of processing elements performing a discrete processing function within the instrument on the received input signals (column 58-64 and column 32, line 48 to column 33, line 16), each of said plurality of processing elements having a graphical representative assigned thereto and said processing elements operating to carry out the user-input instructions upon application of the associated instruction (column 32, lines 5-7 and column 33, lines 19-25), a coupling from said at least one input to one or more processing element graphical representatives (column 31, lines

13-18, column 34, lines 2-13), and a plurality of connections between respective ones of said processing elements (column 34, lines 1-16 and Figure 74) being generated in accordance with manipulation of the processing element graphical representatives corresponding to said plurality of processing elements and an indication being generated of connections therebetween to define a flow of information therebetween (column 23, lines 61-65 and column 31, lines 19-56), such that processing on said one or more received input signals within said instrument performed in accordance with the connected processing elements (column 34, lines 1-16 and Figure 74).

It would have been obvious to one having ordinary skill in the art to modify the invention of Sojoodi to explicitly allow the user to input the instructions that each processing device carries out, as taught by Kodosky, because, as suggested by Kodosky, the combination would have allowed the user to create his own processing devices, rather than only select what has been provided by the system (column 9, lines 52-64) thereby providing more use to the user through system customization allowing the user to create processing elements with the ability to execute instructions desired by the user (column 34, lines 14-22).

9. Claims 1-6, 14-16, 18-27, 35-37, and 39-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,809,189 to Batson in view of U.S. Patent No. 5,301,336 to Kodosky.

With respect to claim 1, Batson discloses a method for configuring and performing processing in a digital oscilloscope comprising the steps of receiving one or more input signals by the digital oscilloscope (column 18, lines 61-67), receiving one or more input parameters by the digital oscilloscope (column 19, lines 33-37), defining a set of instructions input by a user to be associated with one or more processing elements of the digital oscilloscope (column 19, lines 16-33), based upon said one or more input parameters (column 19, lines 33-37), to enable said processing elements to carry out said instructions and perform processing on the received input signals within the digital oscilloscope upon application of the associated processing element (column 19, lines 16-33),

With respect to claims 2 and 23, Batson discloses that at least two of said plurality of processing elements are updated at different speeds (column 20, lines 12-30).

With respect to claims 3 and 24, Batson discloses that a processing object controls the update of said at least two of said plurality of processing elements (column 20, lines 12-30).

With respect to claims 4 and 25, Batson discloses that one of said at least two of said plurality of processing elements operates at an acquisition speed and another of said at least two of said plurality of processing elements operates at a display speed, and wherein the acquisition speed is higher than the display speed (column 20, lines 12-30).

With respect to claims 5 and 26, Batson discloses that said at least two of said plurality of processing elements are idle when not updated (i.e. idle until an corresponding input changes) (column 20, lines 12-30).

With respect to claims 6 and 27, Batson discloses that one of said at least two of said plurality of processing elements is of a cumulative type running at a first speed (column 19, lines 27-33), and another of said at least two of said plurality of processing elements is of a non-cumulative type running at a second speed (column 19, lines 53-60), and wherein the first speed is higher than the second speed (column 20, lines 12-30).

With respect to claim 14, Batson discloses a method for configuring and performing processing in a digital oscilloscope, comprising the steps of receiving one or more input signals by the digital oscilloscope (column 18, lines 61-67), defining a set of instructions input by a user to be associated with one or more processing elements of the digital oscilloscope, to enable said processing elements to carry out said instructions and perform processing on the received input signals within the digital oscilloscope upon application of the associated processing element (column 19, lines 16-33), and controlling said plurality of processing elements to manage a proper flow of data through the plurality of processing elements whereby said digital oscilloscope processes said input signals (column 19, lines 16-33 and 53-60).

With respect to claims 15 and 36, Batson discloses that said controlling said plurality of processing elements is performed by updating one or more of said plurality of processing elements (column 19, lines 53-60).

With respect to claims 16 and 37, Batson discloses that a first of said plurality of processing elements is updated at a first speed, and a second of said plurality of processing elements is updated at a second speed, and wherein the first speed is higher than the second speed (column 20, lines 12-30).

With respect to claims 18 and 39, Batson discloses that said updating one or more of said plurality of processing elements is performed in response to notification that new acquisition data is available (column 20, lines 12-21).

With respect to claims 19 and 40, Batson discloses that said updating one or more of said plurality of processing elements is performed in response to a downstream request for data (i.e. the display controller requests data from waveform memory "16" through memory management unit "14") (column 5, lines 9-29 and Figure 1).

With respect to claims 20 and 41, Batson discloses that said downstream request for data is made by a rendering processing object (i.e. display controller) and there are no buffers present between the plurality of processing elements (column 5, lines 9-29 and Figure 1).

With respect to claims 21 and 42, Batson discloses that said updating one or more of said plurality of processing elements is performed in response to a modification of the definition of any of said plurality of processing elements (column 20, lines 12-21).

With respect to claim 22, Batson discloses a processing web defining processing on input signals in a digital oscilloscope, comprising at least one input for receiving

one or more input signals by the digital oscilloscope (column 18, lines 61-67), a set of instructions input by a user associated with one or more processing elements of the digital oscilloscope, said instructions based upon one or more received input parameters (column 19, lines 16-33), each of said plurality of processing elements performing a discrete processing function within the digital oscilloscope on the received input signals (column 19, lines 16-33 and 47-68).

With respect to claim 35, Batson discloses a processing web defining processing in a digital oscilloscope, comprising at least one input for receiving one or more input signals by the digital oscilloscope (column 18, lines 61-67), a set of user-generated instructions associated with one or more processing elements of the digital oscilloscope (column 19, lines 16-33), each of said plurality of processing elements performing a processing function within the digital oscilloscope on the received input signals upon application of the associated instruction (column 19, lines 16-33 and 47-68).

As noted above, the invention of Batson teaches many of the features of the claimed invention and while the invention of Batson does teach defining a processing web in an oscilloscope, Batson does not provide a corresponding means for defining the processing web graphically.

Kodosky discloses a processing web defining processing on input signals in an instrument, comprising at least one input for receiving one or more input signals by the instrument (column 9, lines 44-47, column 10, lines 54-59 and column 15, lines 4-20), a set of instructions input by a user associated with one or more processing

elements of the instrument, said instructions based upon one or more received input parameters (column 58-64 and column 32, line 48 to column 33, line 16), each of said plurality of processing elements performing a discrete processing function within the instrument on the received input signals (column 58-64 and column 32, line 48 to column 33, line 16), each of said plurality of processing elements having a graphical representative assigned thereto and said processing elements operating to carry out the user-input instructions upon application of the associated instruction (column 32, lines 5-7 and column 33, lines 19-25), a coupling from said at least one input to one or more processing element graphical representatives (column 31, lines 13-18, column 34, lines 2-13), and a plurality of connections between respective ones of said processing elements (column 34, lines 1-16 and Figure 74) being generated in accordance with manipulation of the processing element graphical representatives corresponding to said plurality of processing elements and an indication being generated of connections therebetween to define a flow of information therebetween (column 23, lines 61-65 and column 31, lines 19-56), such that processing on said one or more received input signals within said instrument performed in accordance with the connected processing elements (column 34, lines 1-16 and Figure 74).

It would have been obvious to one having ordinary skill in the art to modify the invention of Batson to include a corresponding means for defining the processing web graphically, as taught by Kodosky, because, as suggested by Kodosky, the combination would have simplified the use of a device, such as the oscilloscope of

Batson, while allowing a user with limited programming skills to efficiently use the device (column 1, lines 35-64).

10. Claims 7-9, 11, 12, 17, 28-30, 32, 33, and 38, as may best be understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Batson in view of Kodosky and further in view of U.S. Patent No. 5,668,469 to Natori et al.

As noted above, the invention of Batson and Kodosky teaches many of the features of the claimed invention, and while the invention of Batson and Kodosky does disclose synchronizing communication between the microprocessor and the memory control unit (Batson, column 7, lines 63-68), the combination does not specifically disclose synchronizing the display controlling processor devices.

Natori teaches a digital oscilloscope using a color plane display device and data display method comprising a plurality of processing elements, including acquisition devices and display devices, (Figure 1), wherein the data read out of a display memory using a display controller is in synchronization with the other processing elements (abstract and column 4, line 42 to column 5, line 14).

It would have been obvious to one having ordinary skill in the art to modify the invention of Batson and Kodosky to include synchronizing the display controlling processor devices, as taught by Natori, because one having ordinary skill in the art would recognize that it is common in the art to synchronize components to insure that data output by a first device is received by a second downstream device at the same rate for accurate operation and Natori suggests that the combination would

have provided correct timing for desired processing and increased resolution (column 4, lines 42-58).

11. Claims 10, 13, 31, and 34, are rejected under 35 U.S.C. 103(a) as being unpatentable over Batson in view of Kodosky and Natori and further in view of U.S. Patent No. 5,736,971 to Shirai.

As noted above, Batson in combination with Kodosky and Natori teaches many of the features of the claimed invention, and while the invention of Batson, Kodosky, and Natori does disclose updating processing elements based upon a request, the combination does not specify that the processing element requests the update upon activation of an update pin, wherein the processing element receives at least one input on an input pin and produces at least zero outputs on an output pin.

Shirai teaches a method and apparatus for increasing resolution of a computer graphics display including a display controller for connection to a CRT (column 5, lines 12-15) that receives data inputs through at least one input pin (i.e. pin connector CN1) (column 5, lines 34-45), produces outputs through at least one output pin (i.e. pin connectors CN2-CN4) (column 5, lines 4-6), and receives controlling instructions through a processor at a pin (i.e. pin connector CN1) (column 4, lines 43-49).

It would have been obvious to one having ordinary skill in the art to modify the invention of Batson, Kodosky, and Natori to include specifying that the processing element requests the update upon activation of an update pin, wherein the

processing element receives at least one input on an input pin and produces at least zero outputs on an output pin, as taught by Shirai, because the invention of Batson, Kodosky, and Natori does teaches the application of the processing device that receives data, outputs data, and receives controller signals from a processor for update indications, but does not give the specifics as to how the data is received (i.e. through pins), and Shirai suggests a corresponding structure applicable to carry out the invention of Batson, Kodosky, and Natori that further allows synchronizing adjustments to improve processing (column 2, lines 45-50).

Response to Arguments

12. Applicant's arguments with respect to claims 1-42 have been considered but are moot in view of the new ground(s) of rejection.

The following arguments, however, are noted:

Applicant argues:

> Those portions of Kodosky cited by the Examiner in his rejection of Applicants' claims refer to Kodosky's modeling of a virtual instrument, which, of course, is not the instrument itself. The modeled virtual instrument performs no processing on input signals. Rather, the modeled virtual instrument is helpful to the user to design or control an actual, physical device. The user still must build the physical instrument that he has modeled. There is no disclosure in Kodosky, nor is there any suggestion or even inference, of a digital oscilloscope, or of connecting processing elements within the digital oscilloscope by using graphical representatives of those processing elements to thereby construct a processing web for performing corresponding processing on one or more received input signals within the digital oscilloscope, as called for by all of Applicants' claims. It is respectfully submitted, there is a significant, patentable difference between constructing a model of an instrument, as described by Kodosky, and constructing the actual, physical instrument, namely, the digital oscilloscope, as defined by Applicants' claims. At best, Kodosky builds a virtual instrument from a computer, a function generator and a digital multimeter (col. 17, lines 38-41, cited

by the Examiner); but this is not an operating, easily configurable digital oscilloscope as is attained by Applicants' claims.

The Examiner first asserts that with respect to Applicant's argument that "The modeled virtual instrument performs no processing on input signals" that Kodosky specifically indicates:

> One particular field in which computer systems are employed to model physical systems is the field of instrumentation. An instrument typically collects information from an environment. Some of the types of information which might be collected by respective instruments, for example, include: voltage, distance, velocity, pressure, frequency of oscillation, humidity or temperature. An instrumentation system ordinarily controls its constituent instruments from which it acquires data which it analyzes, stores and presents to a user of the system. Computer control of instrumentation has become increasingly desirable in view of the increasing complexity and variety of instruments available for use. (column 2, lines 22-34)

> For example, the front panel might include input data in the form a sequence of samples and might provide output data in the form of an indicator showing voltage reading per sample. The icon 62 then might be divided into two two-dimensional regions 68 and 66 which respectively correspond to the input sample count and the voltage reading for that sample count. (column 9, lines 44-47)

> FIG. 13 shows an illustrative block diagram 70 of a sequence structure. The sequence structure is coupled to receive input signals on respective lines 72 and 74 and to provide respective output signals on respective lines 76, 78 and 80. Input registers 82 and 84 are provided to collect input data. (column 10, lines 54-59)

> The instrument use node may reference a virtual instrument in real-time; or it may reference previous data acquired by the virtual instrument. Line 8u indicates that each object of the node class contains a multiplicity of terminals 8g. Line 8v indicates that a block diagram also contains a multiplicity of signal paths 8f. Each signal path contains a multiplicity of terminals as indicated by line 8w. There is at most one terminal per signal path that is designated as the source of the signal. Each terminal contained in a signal path also is contained in a node.

However, there may be terminals in nodes which are not in signal paths. The terminals in a signal path are typically in different nodes. Lines 8y and 8z indicate that each terminal may reference a front panel control or a block diagram control (e.g., a constant). A terminal references exactly one control, and it is either on the front panel or on the block diagram. (column 15, lines 4-20)

FIG. 22 shows a drawing of a computer-generated display of a completed block diagram for the design example of FIG. 21. This block diagram is the graphical program representing the instrument's operation. It shows the interconnections between the elements of the instrument, the signal paths, and the relationship to other virtual instruments. At the upper left of the diagram, four front panel input controls are shown connected to a "Ramp" icon. This icon is built-in function which takes input minimum and maximum values, number of steps, and a flag to indicate linear or log steps, and produces as output an array of sample points, in this case the frequencies of interest. The output is a bold one, which indicates that the data type is an array. (column 17, lines 48-61)

Inside the iteration loop are two virtual instrument icons. The first takes as input an amplitude and a frequency and performs the appropriate IEEE-488 operations to set the function generator 208 of FIG. 21. The second performs the appropriate IEEE-488 operations to obtain a voltage measurement from the multimeter 210 of FIG. 21. The dotted line indicates that there is no data flow, but ensures that they execute sequentially. These two icons represent simple virtual instruments that are easily designed using built-in high level IEEE-488 functions to communicate with the multimeter 210. (column 18, lines 7-17)

Therefore, the invention of Kodosky specifically discloses a virtual instrument generated as, for example, a function generator wherein the function generator receives one or more input signals.

Further since the invention of Kodosky discloses that the virtual instrument can act as any of a plurality of instruments including an instrument acting as an oscillation measuring device (i.e. oscilloscope), Kodosky teaches receiving one or more input signals by a digital oscilloscope.

The Examiner also asserts, in response to Applicant's argument that "there is a significant, patentable difference between constructing a model of an instrument, as described by Kodosky, and constructing the actual, physical instrument, namely, the digital oscilloscope, as defined by Applicants' claims", that configuring a computer to act as a digital instrument is not any less an "actual, physical instrument" than a pre-configured/designed digital instrument.

Applicant then argues:

> Accordingly, it is respectfully submitted, claims 1, 7, 14, 22, 28 and 35, all of the independent claims present in this application, are unobvious over Kodosky. Moreover, the addition to Kodosky of Sojoodi, Batson or Natori, even when taken in combination, still fail to suggest to one of ordinary skill in the art the digital oscilloscope or the method of configuring that digital oscilloscope, as recited in Applicants' claims. Consequently, claims 1, 7, 14, 22, 28 and 35 are in condition for allowance.

The Examiner asserts that there is no "addition to Kodosky of Sojoodi, Batson" in the outstanding rejections, but instead the rejections are based on U.S. Patent Nos. 5,920,479 to Sojoodi et al. and 4,809,189 to Baston in combination with Kodosky, with both Sojoodi and Baston teaching methods for configuring and processing in pre-configured/designed digital oscilloscopes. Therefore, the modification of Sojoodi and Baston with Kodosky teaches the configuration aspects of Kodosky with the pre-configured/designed digital oscilloscopes of Sojoodi and Baston.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent

to Applicant's disclosure:

U.S. Patent No. 6,570, 592 to Sajdak et al. teaches a system and method for specifying trigger condition of a signal measurement system using graphical elements on a graphical user interface.

U.S. Patent No. 5,953,009 to Alexander teaches a graphical system and method for invoking measurements in a signal measurement system.

National Instruments, "Computer-Based Instruments: NI 5911 User Manual Digital Oscilloscope for PCI", teaches a digital oscilloscope programmed by means of graphical representatives of processing elements.

National Instruments, "NI-SCOPE Instrument Driver Quick Reference Guide: Easy Programming for National Instruments Oscilloscopes", teaches graphical representatives of processing elements for use in programming a digital oscilloscope.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. West whose telephone number is (571)272-2226. The examiner can normally be reached on Monday through Friday, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571)272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeffrey R. West
Examiner – AU 2857

May 1, 2006